
ADVENTURES
IN WEB ANIMATIONS

Level 3 – Keyframes

SECTION 2

Multi-step Keyframes

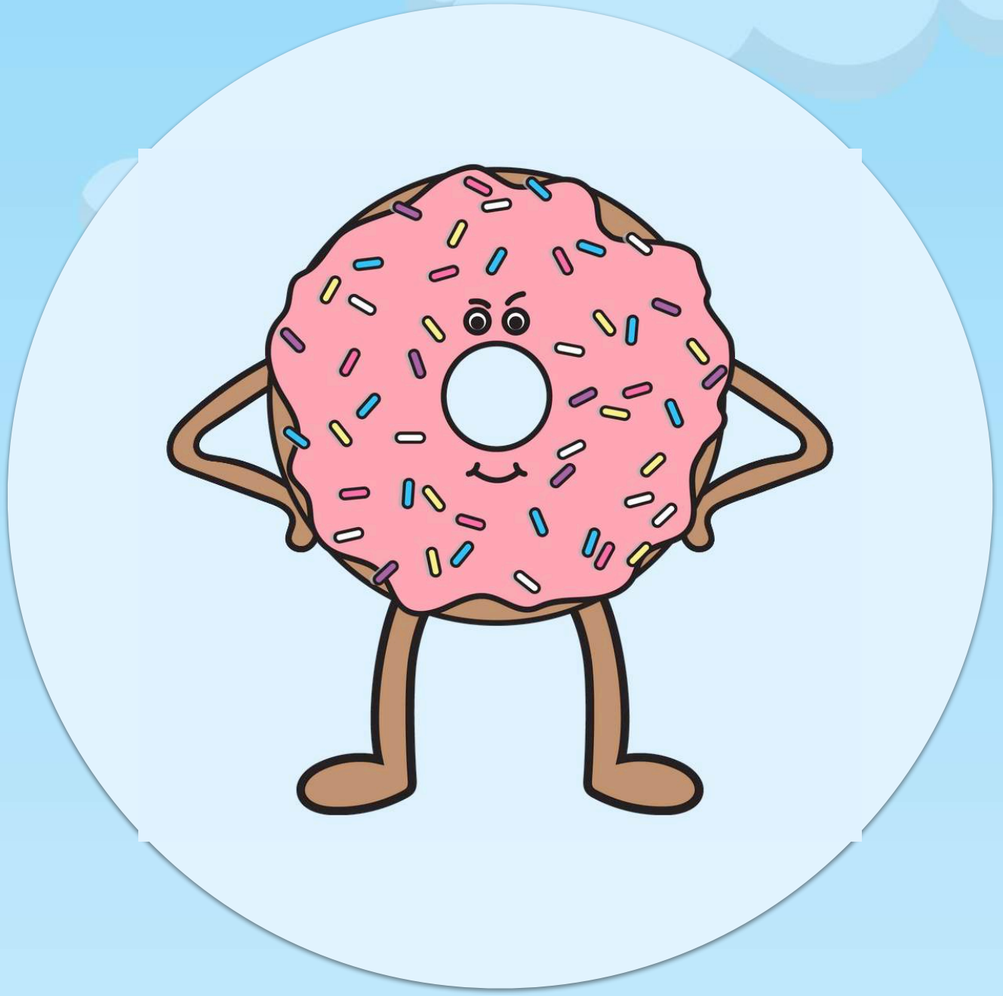
Adding More Steps to the Animation

Our donut's arm swing doesn't feel right with only 2 steps, though.

Let's add more than 2 steps to make the arm swing look more natural.

CSS

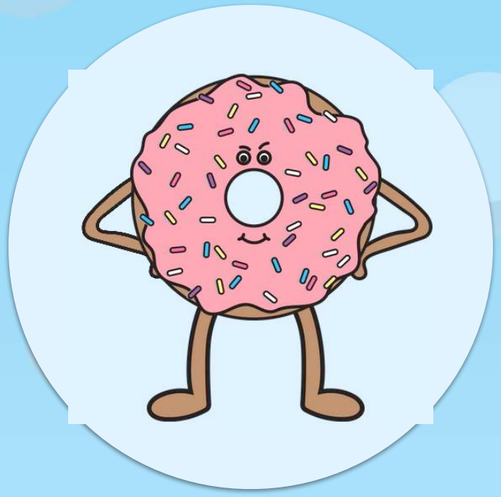
```css
@keyframes swing {
  0%   {transform: rotate(0deg);}
  25%  {transform: rotate(-10deg);}
  50%  {transform: rotate(0deg);}
  75%  {transform: rotate(10deg);}
  100% {transform: rotate(0deg);}
}
```

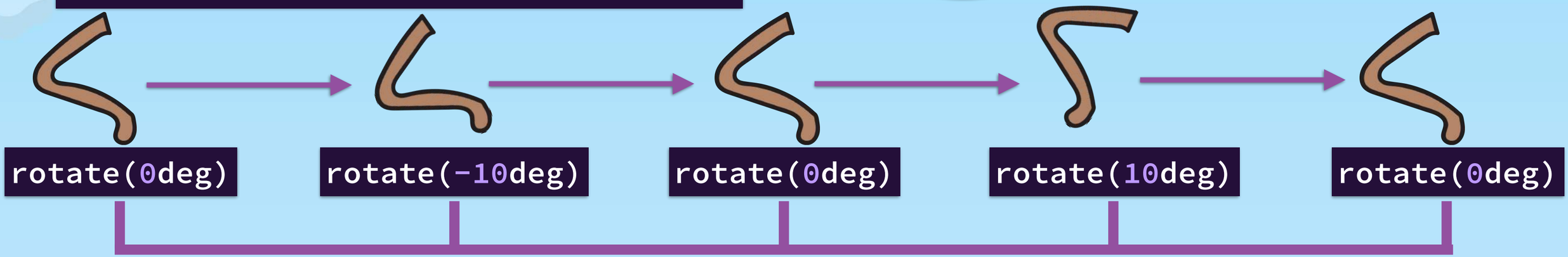


An Even, Linear Spacing of Steps

CSS

```
@keyframes swing {
  0%   {transform: rotate(0deg);}
  25%  {transform: rotate(-10deg);}
  50%  {transform: rotate(0deg);}
  75%  {transform: rotate(10deg);}
  100% {transform: rotate(0deg);}
}
```

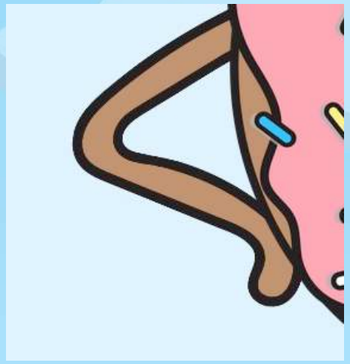




full duration is 2 seconds

An Ease-out Spacing of Steps

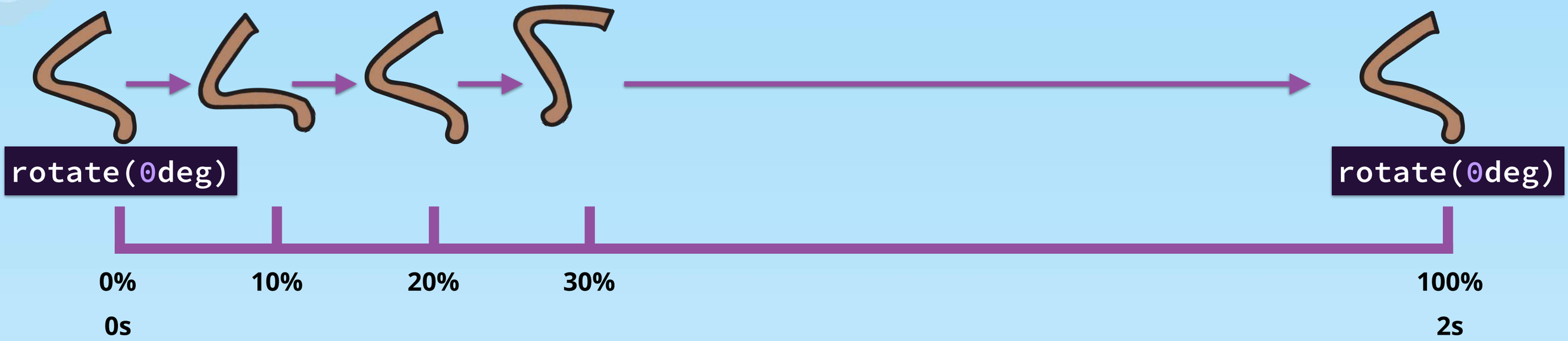
You can space out your keyframes manually, or use a timing function to do the work.



CSS

```
@keyframes swing {
  0%   {transform: rotate(0deg);}
  10%  {transform: rotate(-10deg);}
  20%  {transform: rotate(0deg);}
  30%  {transform: rotate(10deg);}
  100% {transform: rotate(0deg);}
}
```

similar to ease-out timing function



full duration is 2 seconds

Condensing Similar Steps

CSS

```
@keyframes swing {
  0%   {transform: rotate(0deg);}
  25%  {transform: rotate(-10deg);}
  50%  {transform: rotate(0deg);}
  75%  {transform: rotate(10deg);}
  100% {transform: rotate(0deg);}
}
```

If you have any duplicate animation code...

...you can condense the duplicates to one comma-separated line.

CSS

```
@keyframes swing {
  0%, 50%, 100% {transform: rotate(0deg);}
  25% {transform: rotate(-10deg);}
  75% {transform: rotate(10deg);}
}
```

Arms Aren’t Moving in Sync

Both arms are rotating to the right and left at the same time, but we want 1 to move to the left when the other is moving to the right.

Opposites!

Two Options

1. Write 2 different swings for each arm
2. Use a delay on 1 arm to start halfway through

Adding a Delay to the Right Arm

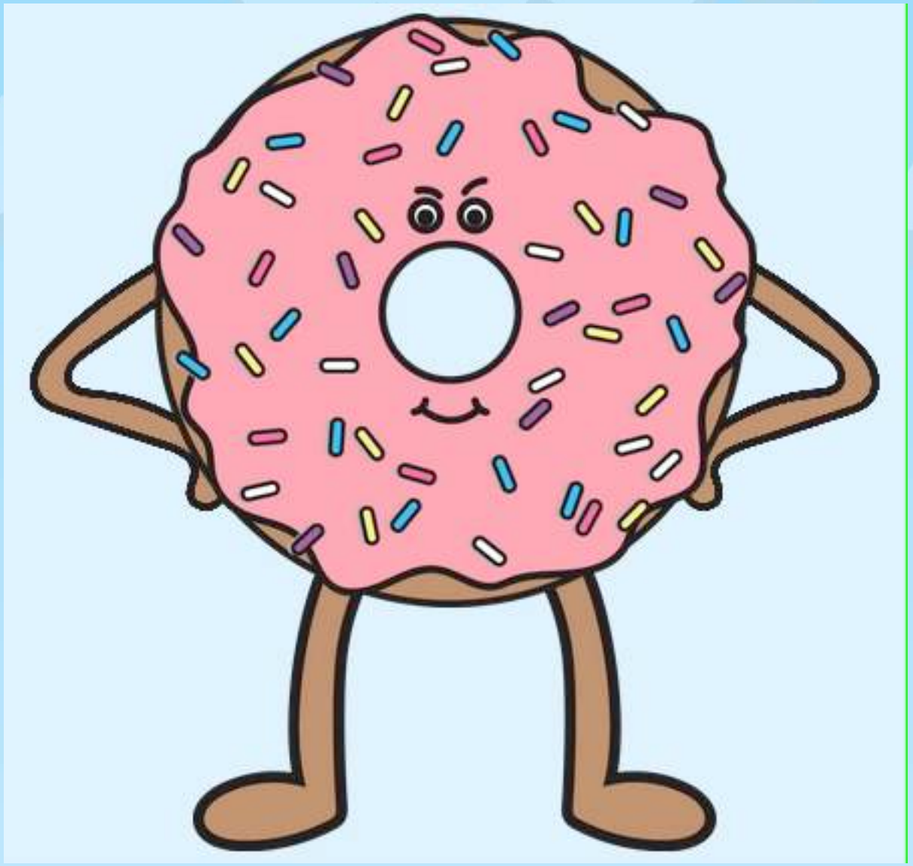
Delaying the right arm by a second will cause the swinging arms to be in sync.

CSS

```css
#left-arm{
  transform-origin: top;
  animation: swing 2s infinite linear;
}

#right-arm {
  transform-origin: top;
  animation: swing 2s infinite 1s linear;
}
```

Giving the right arm a delay will cause the arms to go in and out together.



Another Keyframe Animation

Now, let's animate the left foot.

CSS

```css
@keyframes swing {
  0%, 50%, 100% {transform: rotate(0deg);}
  25% {transform: rotate(-10deg);}
  75% {transform: rotate(10deg);}
}

@keyframes tap {
  0%, 100% {transform: translateY(0px);}
  50% {transform: translateY(-5px);}
}
```

We want a tapping motion that starts and ends in the same spot and slightly moves down halfway through.

We will have it loop infinite every second.

CSS

```css
#left-leg {
  animation: tap 1s infinite;
}
```